

### Amendments to the Claims

This listing of claims replaces all prior versions, and listings, of claims in the application.

#### Listing of Claims

~~Claim 1.~~ (Currently amended)[[:]] A method of measuring a signal transit time in a medical liquid required by a signal to pass through a measurement zone from an ultrasonic transmitter (2) to an ultrasonic receiver (3), ~~wherein~~ in which a line carrying the medical liquid is arranged in the measurement zone, ~~or for measuring changes in the signal transit time, whereby comprising~~  
emitting a step-like signal (10) with the ultrasonic transmitter (2) emits a step-like signal (10), and such that the  
step-like signal (10) passes through the measurement zone, resulting in an oscillation-like received signal (12)[[,]] oscillating about a resting level (11) on the ultrasonic receiver (3), the received signal being sampled at regular intervals  $\Delta t$  and detected,

checking the oscillator-like received signal (12) ~~is checked~~ on the basis of a selection criterion at least during a half-period (14, 15) to determine whether ~~it~~ the oscillator-like received signal (12) is the received signal produced by the step-like signal (10), and

when the result of this check is positive, determining the signal transit time or the change in the signal transit time ~~is determined~~ with ~~the help of~~ an interpolated or extrapolated contact point (20, 21) of the oscillator-like received signal (12) with the resting level (11) in a received signal-time diagram.

~~Claim 2.~~ (Currently amended)[[:]] The method according to Claim 1, ~~characterized in that~~ wherein for determining the signal transit time, the point used as the interpolated or extrapolated contact point is the point (21) in the received signal-time diagram at which the oscillator-like received signal (12) at the beginning of the first half-period (14) differs from the resting level (11)[[,]] ~~and the signal transit time is derived from the signal transit time thus determined.~~

~~Claim 3.~~ (Currently amended)[[:]] The method according to Claim 1, ~~characterized in that~~ wherein for determining the change in signal transit time, the point (20) in the received signal-time diagram at which the oscillator-like received signal (12) intersects the resting level (11) after the first half-period (14) is determined as the interpolated or extrapolated contact point[[,]] ~~and the change in signal transit time is derived from the time thus determined.~~

~~Claim 4.~~ (Currently amended)[[:]] The method according claim 1, ~~characterized in that the~~ wherein an area enclosed between the oscillator-like received signal (12) and the resting level (11) is determined during the half-period (14).

~~Claim 5.~~ (Currently amended)[[:]] The method according to Claim 4, ~~characterized in that~~ wherein the area ~~thus~~ determined is compared with a reference value as the selection criterion.

~~Claim 6.~~ (Currently amended)[[:]] The method according to Claim 4, ~~characterized in that~~ wherein the subsequent half-period (15) is also sampled and detected, and the area enclosed between the oscillator-like received signal (12) and the resting level (11) is determined during the subsequent half-period (15).

~~Claim 7.~~ (Currently amended)[[:]] The method according to Claim 6, ~~characterized in that~~ wherein the area enclosed between the oscillator-like received signal (12) and the resting level (11) is compared with a reference value as the selection criterion during a subsequent half-period (15).

~~Claim 8.~~ (Currently amended)[[:]] The method according to claim 1, ~~characterized in that the~~ wherein an extreme value (18) of the oscillator-like received signal (12) is determined during the half-period (14) and is compared with a reference value.

~~Claim 9.~~ (Currently amended)[[:]] The method according to Claim 8, ~~characterized in that~~ wherein the subsequent half-period (15) is sampled and detected and ~~the~~ an extreme value (19) of the oscillator-like received signal (12) is determined during the subsequent half-period (15) and compared with a reference value.

~~Claim 10.~~ (Currently amended)[[:]] The method according to claim 1, ~~characterized in that~~ wherein the duration of one or more half-periods (14, 15) of the oscillator-like received signal (12) is determined as the selection criterion and is compared with a reference value.

~~Claim 11.~~ (Currently amended)[[:]] The method according to claim 1, ~~characterized in that~~ wherein the resting level (11) is determined as the average of received signal samples (13) preceding the half-period (14).

~~Claim 12.~~ (Currently amended)[[:]] The method according to Claim 4, ~~characterized in that~~ wherein the ~~areas thus~~ area determined ~~are~~ is analyzed as a measure of the attenuation of the signal.

~~Claim 13.~~ (Currently amended)[[:]] The method according to claim 1, ~~characterized in that~~ wherein the medical liquid is blood, ~~dialysis~~ dialysis liquid or an infusion liquid.

~~Claim~~ 14. (Currently amended)[[:]] A device for use of the method according to claim 1, comprising

an ultrasonic transmitter (2) for emitting the step-like signal (10),

an ultrasonic receiver (3) which is separated from the ultrasonic transmitter (2) by the measurement zone for delivering a received signal (12) which oscillates about a resting level (11) as the response to the step-like (10) signal passing through the measurement zone,

a line (1) arranged in the measurement zone carrying a medical liquid,

an analyzer unit (6) that is connected to the ultrasonic transmitter (2) and the ultrasonic receiver (3),

~~whereby~~ the analyzer unit (6) ~~receives~~ receiving synchronized signals for sending the transmission signal and ~~has~~ having a sampling device for sampling and storing the oscillator-like received signal (12) at regular intervals  $\Delta t$ ,

~~whereby~~ the analyzer unit (6) ~~is also suitable~~ being configured for checking on the oscillator-like received signal (12) on the basis of a selection criterion at least during a half-period (14, 15) to determine whether ~~it~~ the signal is the received signal caused by the step-like signal (10), and

if the result of the test is positive, ~~to determine~~ for determining the signal transit time or the change in the signal transit time of an interpolated or extrapolated contact point (20, 21) of the oscillator-like received signal (12) with a resting level (11) in a received signal-time diagram.

~~Claim 15.~~ (Currently amended)[[:]] The device according to Claim 14, ~~characterized in that~~ wherein the analyzer unit (6) is ~~also~~ suitable configured for analyzing at least one of the signal transit time ~~and/or~~ and the change in signal transit time as a measure of at least one of the composition ~~and/or~~ and the change in composition of the medical liquid on the basis of stored information.

~~Claim 16.~~ (Currently amended)[[:]] The device according to ~~Claims~~ Claim 14, ~~characterized in that~~ wherein the medical liquid is blood, dialysis liquid or an infusion liquid.

~~Claim 17.~~ (Currently amended)[[:]] The device according to Claim 16, ~~characterized in that it~~ wherein the device is a blood volume sensor.

~~Claim 18.~~ (Currently amended)[[:]] The device according to Claim 17, ~~characterized in that it~~ wherein the device is the blood volume sensor ~~also~~ and an air detection sensor.